

Remarks

Claims 5-14 are pending herein. By this Amendment, claims 5, 7 and 8 have been amended.

Claim 5 has been amended at line 1 to add the term unit after the language “A thermal processing”. Claim 5 also has been amended to clarify that each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space.

Claim 8 has been amended to recite that: (i) the cooling-gas introducing unit is a cooling-gas introducing pipe arranged in a circular space and extending in a vertical direction, the circular space being formed between the processing container and the plurality of objects to be processed held in a tier-like manner, and (ii) each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space. Support for the amendments to claim 8 can be found, e.g., in claim 5.

In the Office Action, claim 7 is rejected under 35 U.S.C. §112, second paragraph; claims 5, 7 and 10 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,727,474 to Gat; and claims 6, 8, 9 and 11-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gat or alternatively over Gat in view of U.S. Patent No. 6,403,927 to Kato.

In view of the amendments and remarks herein, Applicants respectfully request reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claim 7 Under 35 U.S.C. §112

Claim 7 is rejected under §112, second paragraph, as being indefinite. According to the Office Action, there is insufficient antecedent basis for the limitation “the plurality of cooling-gas introducing pipes” in claim 7. This limitation is introduced in claim 6. By this Amendment, claim 7 has been amended to depend upon claim 6 rather than upon claim 5. Applicants respectfully submit that amended claim 7 is not indefinite.

II. Rejection of Claims 5, 7 and 10 Under 35 U.S.C. §102(e)

Claims 5, 7 and 10 are rejected under §102(e) as being anticipated by Gat.

Claim 5 is independent. Claim 7 has been amended to depend upon claim 6, which in turn depends upon claim 5. Claim 10 depends upon claim 5.

Applicants respectfully submit that claims 5, 7 and 10 are not anticipated by Gat.

Amended claim 5 recites that each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space. The instant specification teaches that:

The plurality of blowing-out holes 26 having a diameter of about 5 mm is formed at suitable intervals in a longitudinal direction at the pipe wall of the cooling-gas introducing pipe 28, in order to blow out the cooling gas in a tangential direction of the circular space 21. When the cooling gas is blown out in the tangential direction in order not to directly come in contact with the wafers w, local cooling of the wafers w and scattering of particles can be prevented. In addition, when the cooling gas is blown out in the tangential direction, a stewing flow of the cooling gas may be generated in the processing container 2. Thus, the wafers w can be cooled more effectively, uniformly within a surface and uniformly between surfaces. [emphasis added] (page 10, lines 16-28).

Thus, because each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space, local cooling of the wafers and scattering of particles can be prevented. In addition, a stewing flow of the cooling gas may be generated in the processing container so that the wafers can be cooled more effectively, uniformly within a surface and uniformly between surfaces.

Gat discloses a plurality of blowing holes. However, none of the blowing holes in Gat blows out the gas in a tangential direction. Thus, Gat does not disclose that each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space. Therefore, for at

least this reason, Applicants respectfully submit that claims 5, 7 and 10 are not anticipated by Gat.

III. Rejection of Claims 6, 8, 9 and 11-14 Under 35 U.S.C. §103(a)

Claims 6, 8, 9 and 11-14 are rejected under §103(a) as being unpatentable over Gat or alternatively over Gat in view of Kato. Kato is cited for teaching the use of valves (16) connected to individual air flow channels for the purpose of controlling the flow rate of cooling gas.

Claims 6, 9 and 11 depend upon claim 5. As discussed above, none of the blowing holes in Gat blows out the gas in a tangential direction. Thus, Gat does not disclose the claim 5 feature wherein each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space. Kato does not cure this deficiency. Therefore, Applicants respectfully submit that claims 6, 9 and 11 would not have been obvious over Gat, either alone or in view of Kato.

By this Amendment, claim 8 has been amended to recite that: (i) the cooling-gas introducing unit is a cooling-gas introducing pipe arranged in a circular space and extending in a vertical direction, the circular space being formed between the processing container and the plurality of objects to be processed held in a tier-like manner, and (ii) each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space.

Claims 12-14 depend directly or indirectly upon claim 8.

As noted above, Gat does not disclose the claim 5 feature wherein each blowing hole is formed at a pipe wall of the cooling-gas introducing pipe in such a manner that each blowing hole blows out the cooling gas in a tangential direction of the circular space. Kato does not cure this deficiency. The Office Action acknowledges that Gat does not teach a plurality of cooling - gas introducing pipes or that the blowing holes therein have a porous member. Kato is cited for teaching the use of valves which the Office Action characterizes as being equivalent to the porous member recited in claim 8. Applicants submit that since neither Gat nor Kato teaches blowing holes formed at a pipe wall of the cooling-gas introducing pipe in such a manner that

each blowing hole blows out the cooling gas in a tangential direction of the circular space, it would not have been obvious in view of the combined teachings of the references to combine Kato's valves with blowing holes of the type recited in claims 5 and 8.

Thus, for at least this reason, Applicants respectfully submit that claims 8 and 12-14 also would not have been obvious over Gat in view of Kato.


IV. Conclusion

In view of the amendments and remarks herein, Applicants respectfully request that the rejections set forth in the Office Action be withdrawn and that claims 5-14 be allowed.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M277.

Respectfully submitted,
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